FIG.1

BLOCK DIAGRAM SHOWING A CONFIGURATION OF AN EMBODIMENT OF A DIGITAL CAMERA ACCORDING TO THE PRESENT INVENTION.
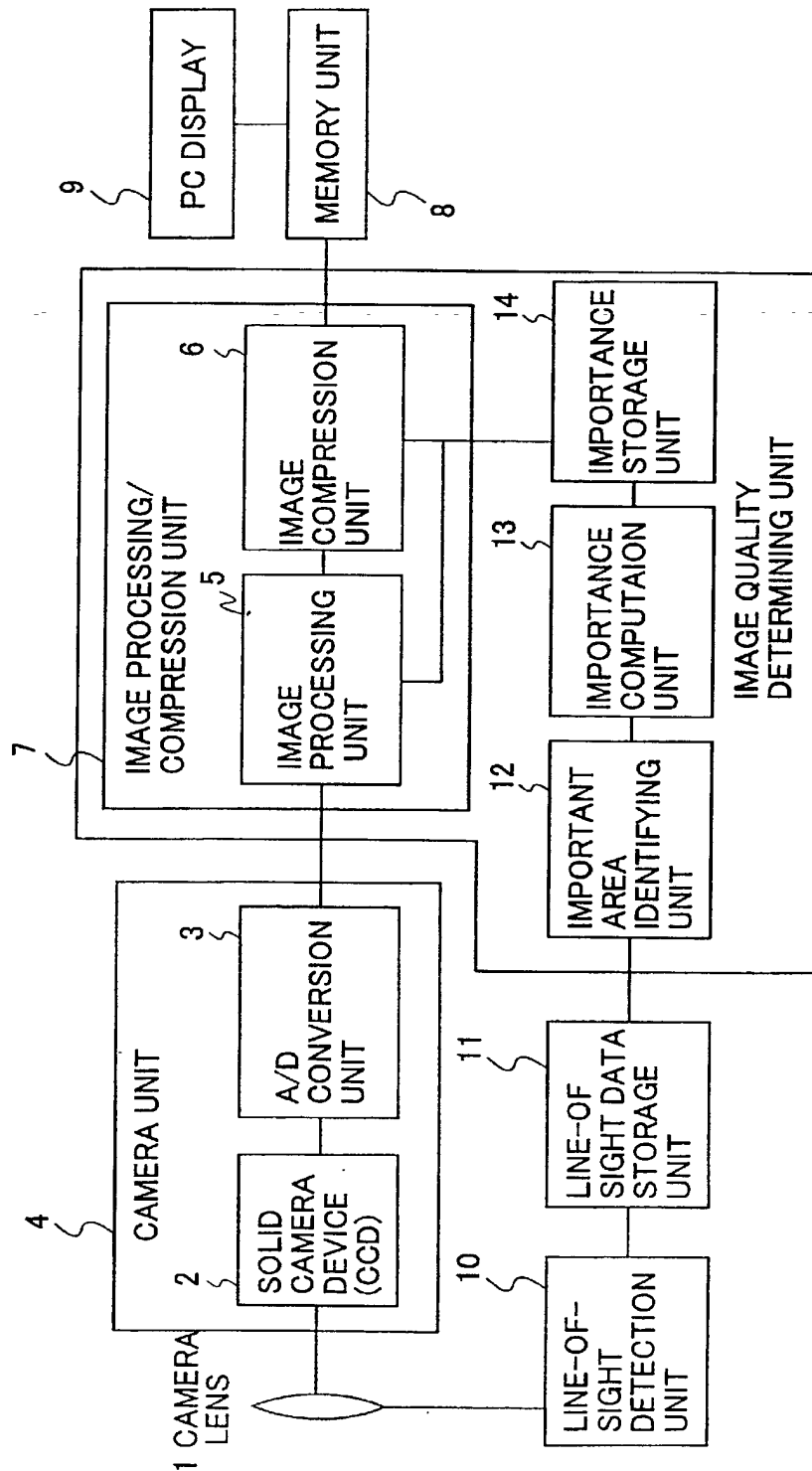
FIG.2

DRAWING SHOWING AN EMBODIMENT OF A CONFIGURATON
OF A LINE-OF-SIGHT DETECTION UNIT.

FIXATION POINT
DETECTION CIRCUIT 26

PHOTO ELECTRIC-
CONVERSION DEVICE 25

24
CONDENSER
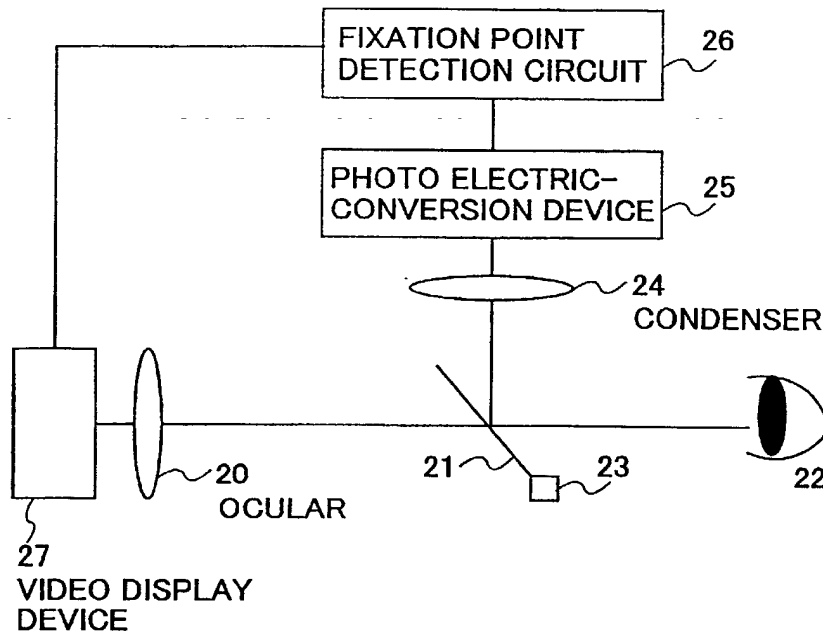
20
OCULAR

21 23 22

27
VIDEO DISPLAY
DEVICE

FIG.3

DRAWING SHOWING THE WAY A DISPLAY SCREEN IS DIVIDED
INTO A PLURALITY OF BLOCKS IN ORDER TO DETECT A POINT
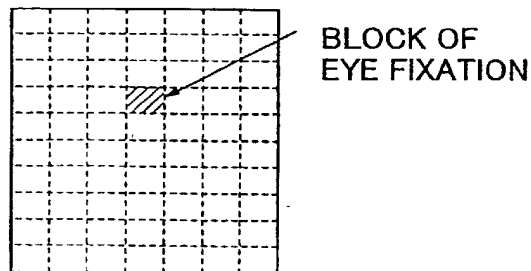OF FIXATION BY THE UNIT OF ONE BLOCK.

BLOCK OF
EYE FIXATION

FIG.4

DRAWING SHOWING THE IMPORTANCE OF THE PIXEL OF
INTEREST AND POSITIONAL RELATIONSHIP BETWEEN THE
AREA OF IMPORTANCE AND THE PIXEL OF INTEREST.

AREA OF
IMPORTANCE

x

PIXEL OF INTEREST
(LEVEL OF IMPORTANCE: ax+b)
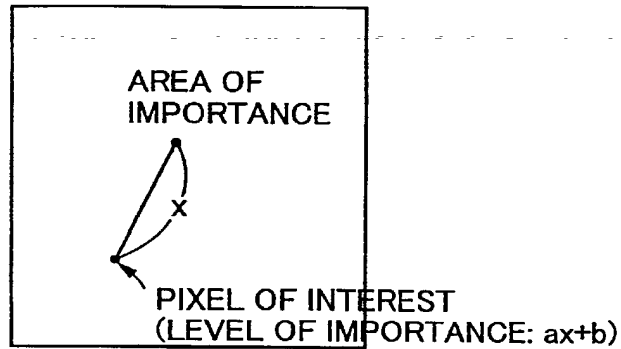
FIG.5

DRAWING SHOWING A GAUSIAN DISTRIBUTION FUNCTION
THAT DEFINES LEVELS OF IMPORTANCE.

f(x)

X

μ
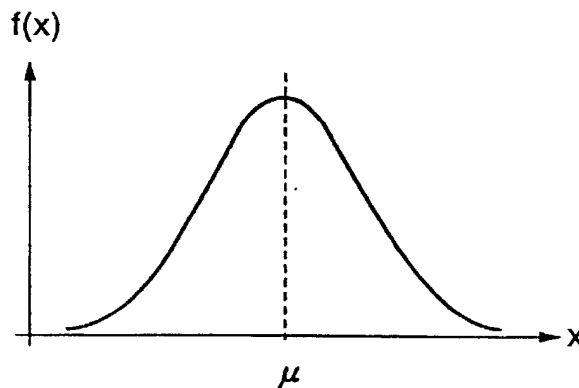
FIG.6

DRAWING SHOWING THE WAY TWO AREAS OF IMPORTANCE
ARE SPECIFIED IN AN IMAGE.

AREA OF
IMPORTANCE 1

r1

(x,y)

ANY
r2 GIVEN
POSITION

AREA OF
IMPORTANCE 2
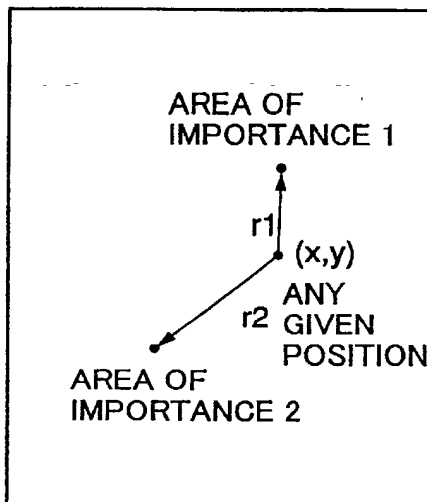
FIG.7

DRAWING SHOWING THE IMPORTANCE OF POSITION(X,Y)
IN THE IMAGE WITH RESPECT TO THE FIRST AREA OF
IMPORTANCE AND THE SECOND AREA OF IMPORTANCE.

$P(x,y)$

$\beta(x,y)$

$\alpha(x,y)$

r1   r2

r
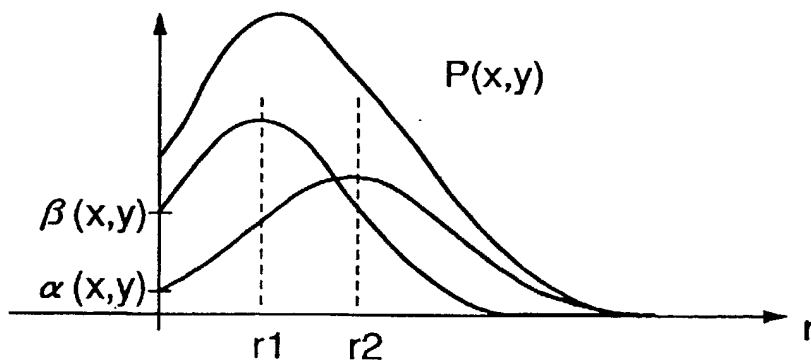
FIG.8

DRAWING SHOWING A CONTOUR PATTERN OF IMPORTANCE
IN A CASE WHERE THE AREA OF IMPORTANCE IS DEFINED AS
A SMALL ELLIPSE REGION OF THE IMAGE.

CONTOUR PATTERN
OF F(X,Y)
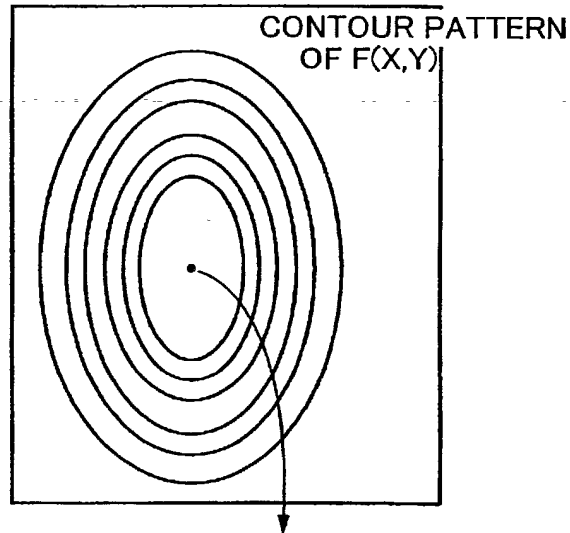
CENTER OF AREA OF IMPORTANCE
i.e., FIXATION POINT OF USER EYE

FIG.9

DRAWING SHOWING AN EXAMPLE OF IMPORTANCE THAT IS
QUANTIZED INTO FIVE LEVELS.

IMPORTANCE LEVEL5

IMPORTANCE LEVEL4

IMPORTANCE
LEVEL3

IMPORTANCE
LEVEL2

IMPORTANCE
LEVEL1

IMPORTANCE
GREAT
IMPORTANCE

SMALL
IMPORTANCE

CENTER OF AREA OF IMPORTANCE
i.e., FIXATION POINT OF USER EYE
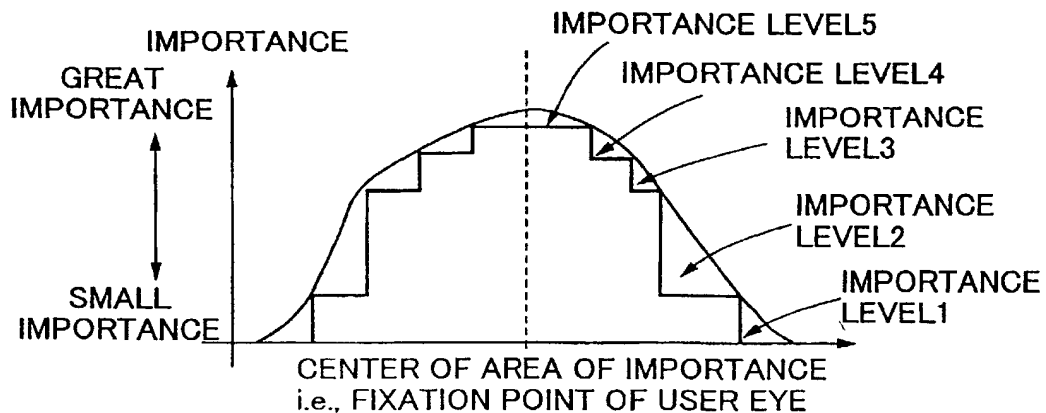
FIG.10

BLOCK DIAGRAM SHOWING A FUNCTIONAL BLOCK
CONFIGURATION OF AN IMAGE PROCESSING UNIT.

```
      ⌁ 5-1                    ⌁ 5-2
┌──────────────┐        ┌──────────────┐
│ IMPORTANCE   │        │  IMAGE DATA  │
│ STOREGE UNIT │        │              │
└──────────────┘        └──────────────┘
         │                      │
         ▼                      ▼
      ┌─────────────────────┐
      │ DETERMINE           │
      │ IMPORTANCE OF       │  ⌁ 5-3
      │ AREAS 1,2,AND 3     │
      └─────────────────────┘
                │
                ▼
      ┌─────────────────────┐
      │ DETERMINE           │
      │ IMAGE QUALITY OF    │  ⌁ 5-4
      │ AREAS 1,2,AND 3     │
      └─────────────────────┘
                │
                ▼
┌────────────────────────────────────────────┐
│ IMAGE PROCESSING                            │
│                                             │  ⌁ 5-5
│ •PROCESSING OF DETERMINING NUMBER OF        │
│  GRAY-SCALE LEVELS                          │
│ •PROCESSING OF COLOR INTERPOLATION          │
│ •PROCESSING OF SHARPNESS ENHANCEMENT        │
│ •PROCESSING OF NOISE REMOVAL                │
└────────────────────────────────────────────┘
                │
                ▼
      ┌──────────────┐
      │ OUTPUT IMAGE │  ⌁ 5-6
      └──────────────┘
```
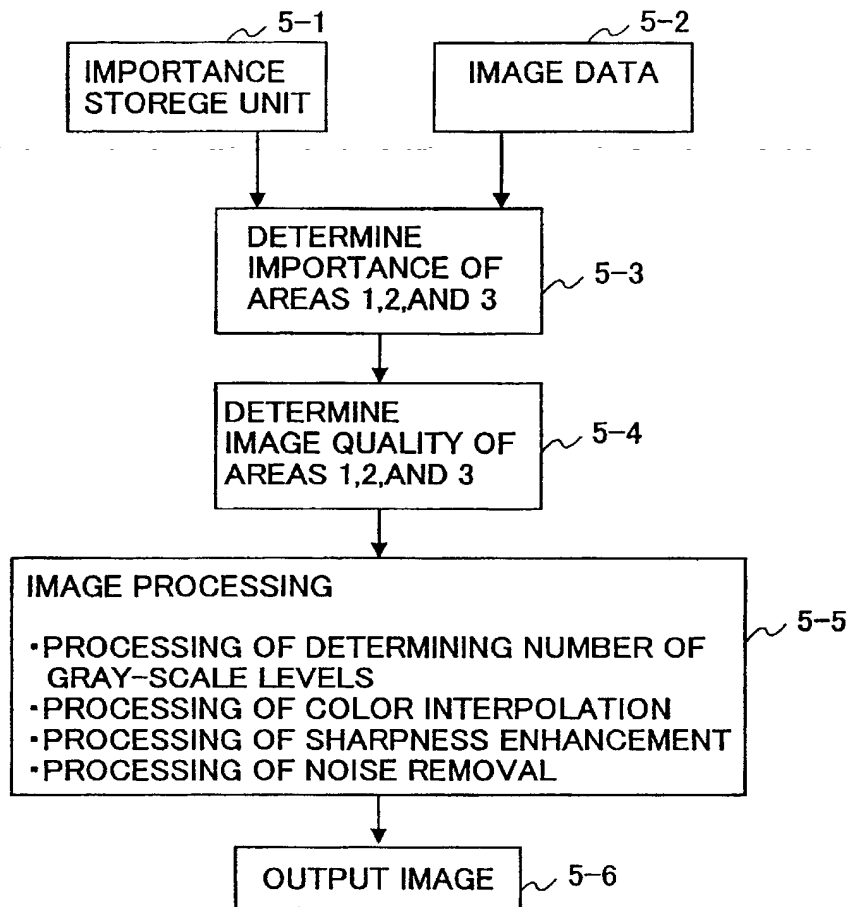
FIG.11

DRAWING SHOWING QUANTIZED IMPORTANCE LEVELS THAT
ARE ASSIGNED TO RESPECTIVE AREAS OF AN IMAGE WITH
REFERENCE TO AN EXAMPLE IN WHICH THE AREA OF
IMPORTANCE IS AN ELLIPSE SHAPE.

CENTER OF AREA
OF IMPORTANCE
i.e., FIXATION POINT
OF USER EYE

AREA 2
IMPORTANCE:B

AREA 1
IMPORTANCE: A
GREATEST IMPORTANCE

AREA 3
IMPORTANCE: C
SMALLEST IMPORTANCE
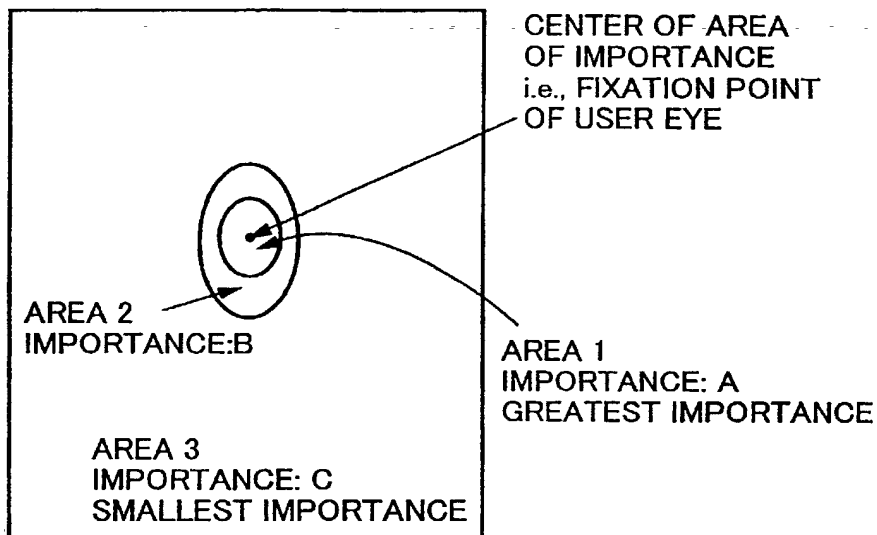
FIG.12

EXAMPLE OF BLOCKS INTO WHICH AN IMAGE IS DIVIDED
HORIZONTALLY AND VERTICALLY.
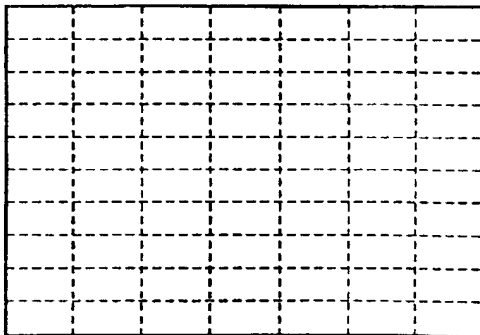
FIG.13

EXAMPLE OF BLOCKS HAVING DIFFERENT SHAPES INTO
WHICH AN IMAGE IS DIVIDED.
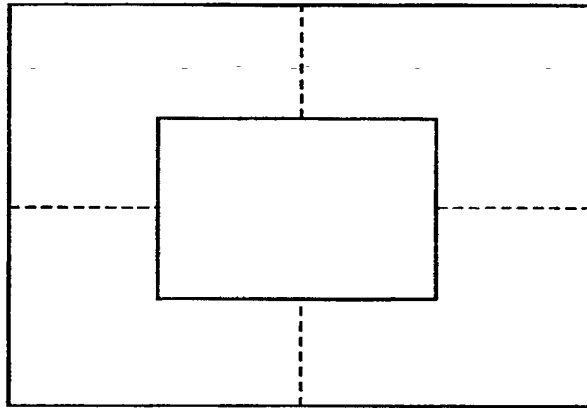
FIG.14

BLOCK DIAGRAM SHOWING AN EXAMPLE OF A HARDWARE
CONFIGURATION INCLUDING AN IMAGE OUTPUT APPARATUS.

FIG.15

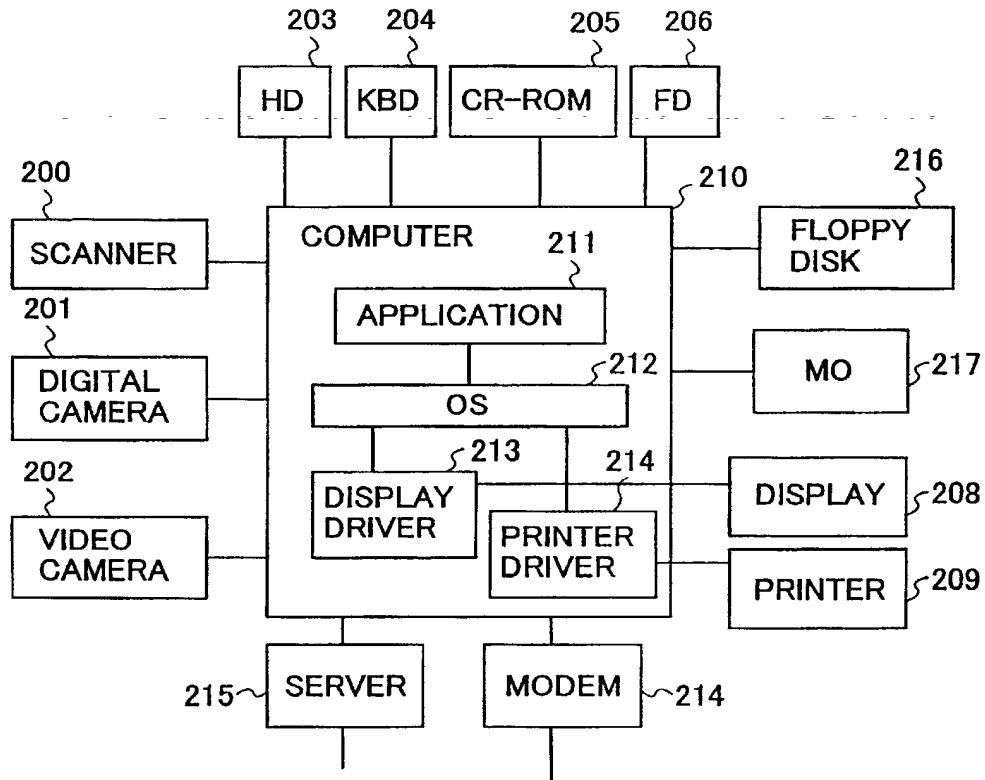FLOWCHART SHOWING A FIRST EMBODIMENT OF A PROCESS
OF MAKING IMAGE QUALITY VARY DEPENDING ON LEVELS OF
IMPORTANCE.

```
┌─────────────────────┐         ┌─────────────────────┐
│ IMPORTANCE          │ ～ST1   │  IMAGE DATA         │ ～ST2
│ STORAGE UNIT        │         │                     │
└─────────────────────┘         └─────────────────────┘
            │                              │
            ▼                              ▼
┌───────────────────────────────────────────┐
│ IMPORTANCE COMPUTATION              │ ～ST3
│ MEANS                               │
│ PIXEL OF INTEREST:                  │◄──────┐
│ DETERMINE IMPORTANCE OF X           │       │
└───────────────────────────────────────────┘       │
                    │                               │
                    ▼                               │
┌───────────────────────────────┐                   │
│ PROCESSING MEANS FOR          │ ～ST4             │
│ DETERMINING NUMBER OF         │                   │
│ GRAY-SCALE LEVELS             │                   │
└───────────────────────────────┘                   │
                    │                               │
                    ▼                               │
              ～ST5                                  │
         ╱──────────────╲                           │
        ╱ CHECK WHETHER   ╲                         │
       ╱ PROCESSING FOR     ╲     NO                │
      ╱ DETERMINING NUMBER    ╲──────────────────────┘
       ╲ OF GRAY-SCALE LEVELS╱
        ╲ IS COMPLETED FOR   ╱
         ╲ ALL PIXELS       ╱
          ╲────────────────╱
                    │ YES
                    ▼
      ┌──────────────────────┐
      │ OUTOUT IMAGE         │ ～ST6
      └──────────────────────┘
```
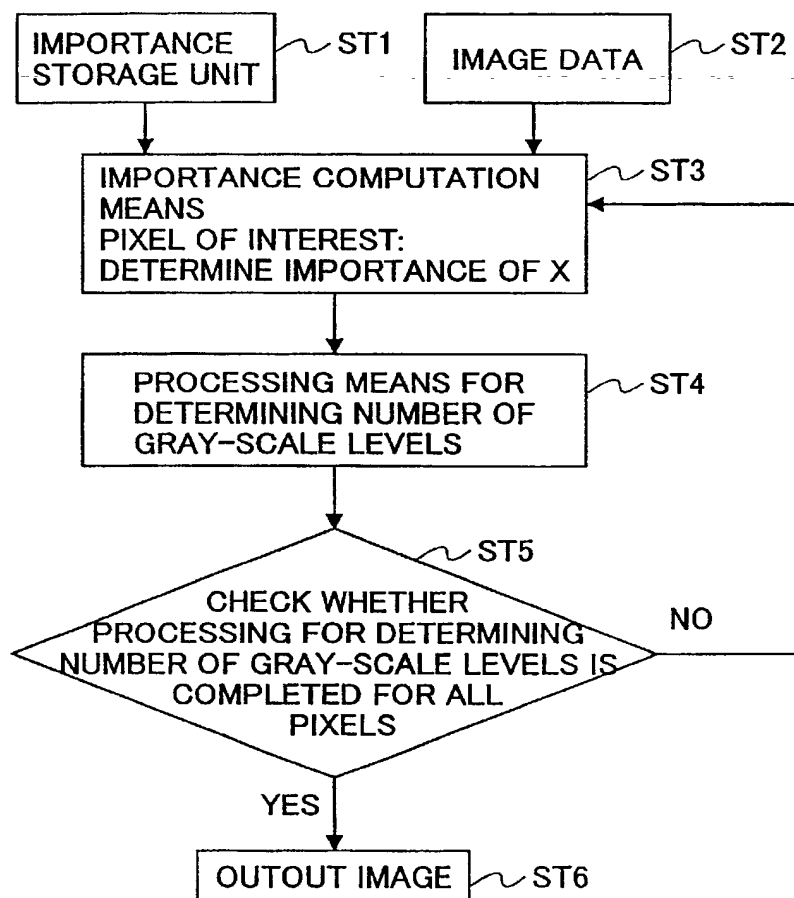
FIG.16

FLOWCHART SHOWING A SECOND EMBODIMENT OF A PROCESS OF MAKING IMAGE QUALITY VARY DEPENDING ON LEVELS OF IMPORTANCE.

IMPORTANCE STORAGE UNIT ⟿ ST1

IMAGE DATA ⟿ ST2

IMPORTANCE COMPUTATION MEANS
PIXEL OF INTEREST:
DETERMINE IMPORTANCE OF X ⟿ ST3

WHAT COLOR IS TO BE INTERPOLATED FOR PIXEL OF INTEREST:X ⟿ ST4

ST5

PROCESSING ACCORDING TO IMPORTANCE

ST6

AVERAGE OF FOUR NEIGHBORING PIXELS

COLOR INTERPOLATION PROCESSING

CHECK WHETHER COLOR INTERPOLATION PROCESSING IS COMPLETED FOR ALL PIXELS ⟿ ST7
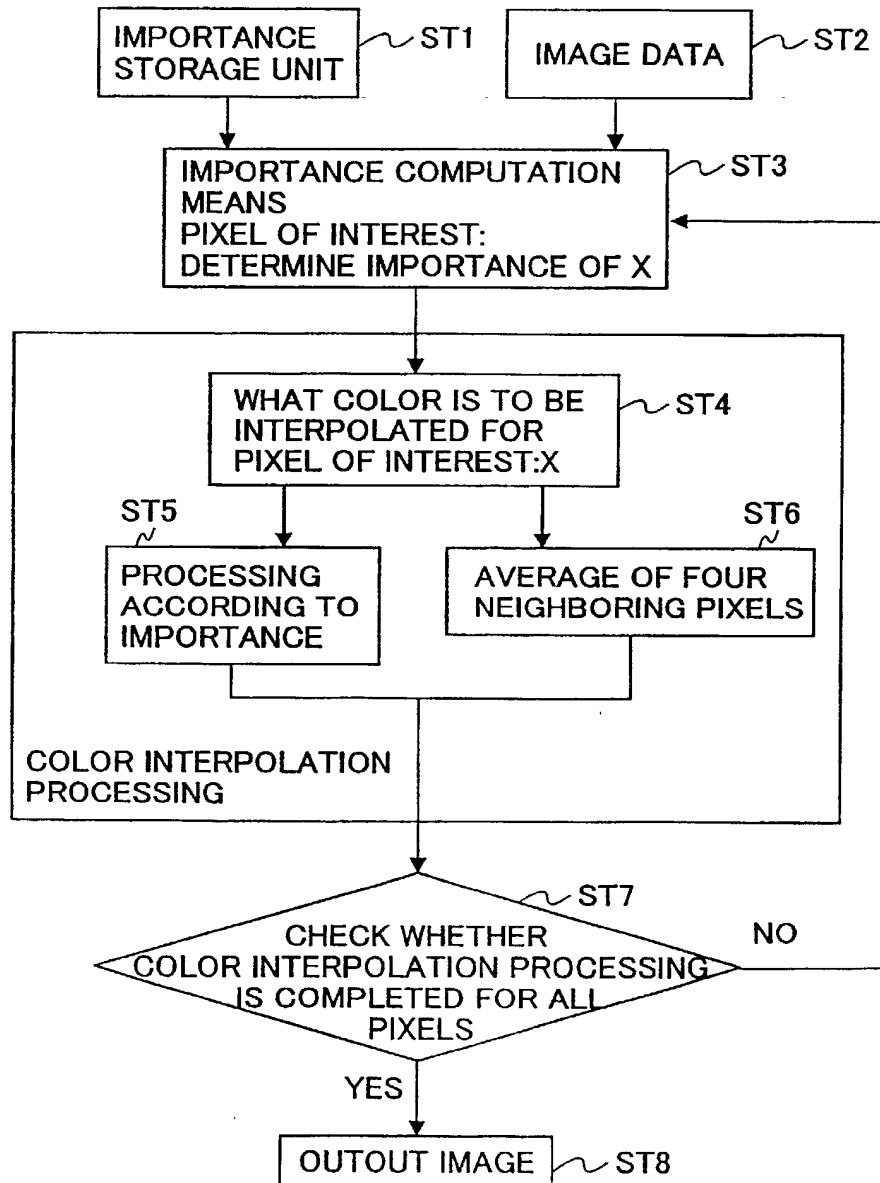
NO

YES

OUTOUT IMAGE ⟿ ST8

FIG.17

DRAWING SHOWING A CONFIGURATION OF A COLOR FILTER
IN THE CASE OF A CAMERA DEVICE BEING A PRIMARY COLOR
ARRAY CCD.

G	B	G	B	G
R	G	R	G	R
G	B	G	B	G
R	G	R	G	R
G	B	G	B	G

FIG.18

DRAWING SHOWING THE PIXCEL OF INTEREST AND FOUR
NEIGHBORING PIXELS FOR THE PURPOSE OF COLOR
INTERPOLATION PROCESSING.

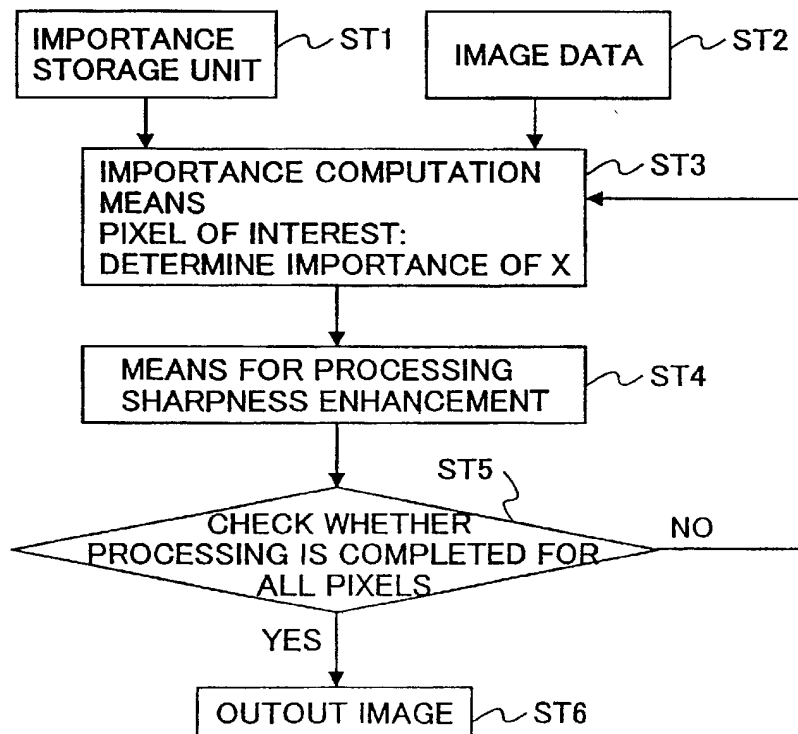|	a	
b	X	c
	d	

FIG.19

DRAWING SHOWING AN EXAMPLE OF A WIDE AREA OF
INTERPOLATION REFERENCE THAT CORRESPONDS TO
THE CASE OF GREAT IMPORTANCE.

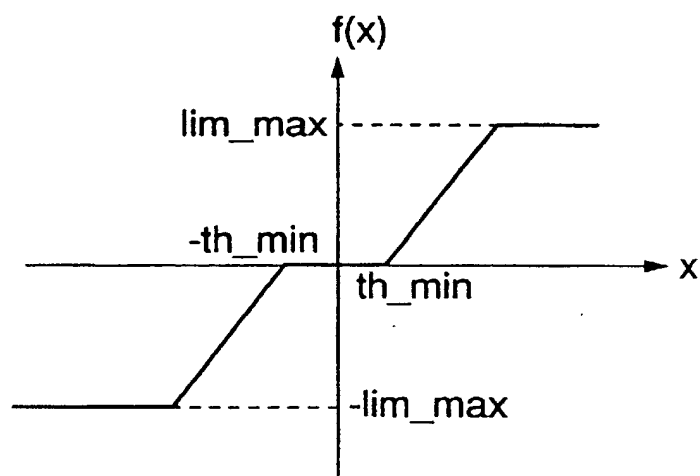|	e		h	
i		a		l
	b	x	c	
j		d		k
	f		g	

FIG.20

FLOWCHART SHOWING A THIRD EMBODIMENT OF A PROCESS OF
MAKING IMAGE QUALITY VARY DEPENDING ON LEVELS OF
IMPORTANCE.

```
┌─────────────────┐            ┌─────────────────┐
│ IMPORTANCE      │~ST1        │ IMAGE DATA      │~ST2
│ STORAGE UNIT    │            │                 │
└─────────────────┘            └─────────────────┘
        │                              │
        ▼                              ▼
┌──────────────────────────────────────────┐
│ IMPORTANCE COMPUTATION          │~ST3
│ MEANS                           │
│ PIXEL OF INTEREST:              │
│ DETERMINE IMPORTANCE OF X       │
└──────────────────────────────────────────┘
        │
        ▼
┌──────────────────────────────┐
│ MEANS FOR PROCESSING         │~ST4
│ SHARPNESS ENHANCEMENT        │
└──────────────────────────────┘
        │
        ▼           ST5
      ◇ CHECK WHETHER           ◇  NO
        PROCESSING IS COMPLETED FOR
           ALL PIXELS
        │
       YES
        ▼
┌──────────────────┐
│ OUTOUT IMAGE     │~ST6
└──────────────────┘
```

FIG.21

DRAWING SHOWING THE PIXEL OF INTEREST AND NEIGHBORING
PIXELS FOR THE PURPOSE OF SHARPNESS ENHANCEMENT
PROCESSING.

		s		
		t		
a	b	X	c	d
		u		
		v		

FIG.22

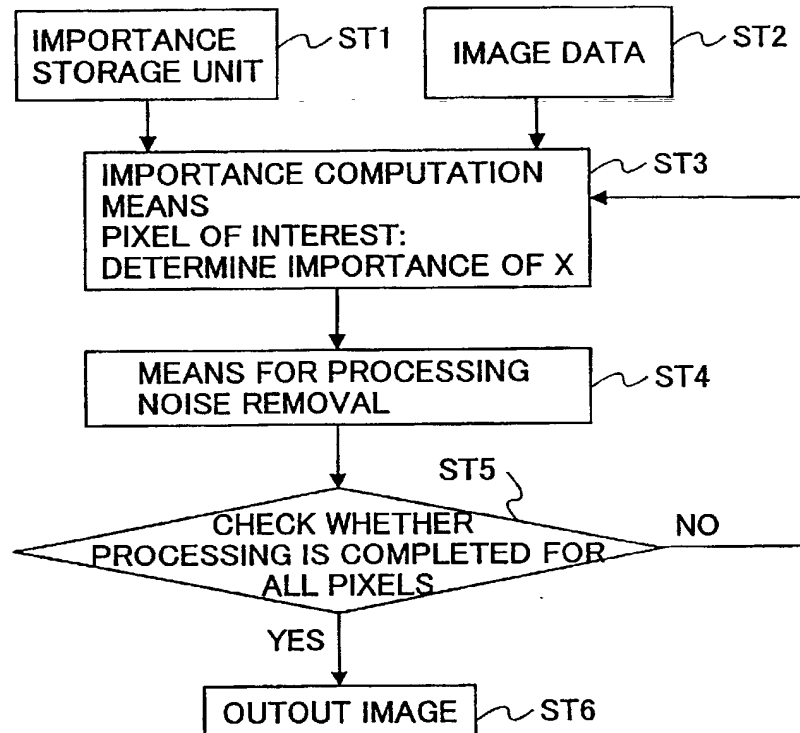DRAWING SHOWING A NON-LINEAR TRANSFORMATION APPLIED
TO LAPLACIAN OPERATION.

FIG.23

FLOWCHART SHOWING A FOURTH EMBODIMENT OF A PROCESS OF MAKING IMAGE QUALITY VARY DEPENDING ON LEVELS OF IMPORTANCE.